APRIL, MDCCCLVIII.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY

AND

JOURNAL FOR RECORDING FACTS & ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, ANNELIDES,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CLXXXIX.

LONDON:
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BY EDWARD NEWMAN.

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London: NEWMAN, 9, Devonshire Street, Bishopsgate; and sold by Messrs. W. KENT & Co., Paternoster Row; Mr. BENNETT, 5, Bishopsgate Street; and Mr. STEVENS, 24, Bloomsbury Street.

Professor Harvey read a paper on a new form of fibro-cellular tissue which he had discovered in an Alga from the Reef of Florida.

Professor Kinahan read a paper on the unusual character of the present season.

Mr. Bailey exhibited a fine pair of the great Goliath beetle, and also a Longicorn taken from timber in the Crimea.

The thanks of the members were given to Mr. Bailey.

Mr. Edwin Birchall exhibited a collection of Lepidoptera taken on the Swiss Alps.

The Director of the Museum exhibited some rare Mollusca, collected by Dr. Harvey; among them the fine orange cowry, the rare Cypræa umbilicata, C. Scottii, and the pretty Trigonia pectinata, the sole living representative of an extensive genus of fossil shells.

Visitors having withdrawn, the following were, after ballot, duly elected as ordinary members,—T. M. Dolan, A. H. Hamilton, R. J. Montgomery, J. H. Nicholson, and E. J. Smyth: as corresponding member,—C. Spence Bate, F.L.S., of Plymouth.

DUBLIN NATURAL-HISTORY SOCIETY.

Friday, February 5, 1858.—The PRESIDENT in the Chair.

Mr. W. Andrews, Hon. Secretary, read a note on the capture of the mute swan in Dundalk Bay, already communicated to the 'Zoologist' by Lord Clermont.

Dr. Kinahan read the following

Notes on the Subaqueous Habits of the Water Ouzel.

"During the years 1849 and 1850, having nearly daily occasion to frequent that part of the river Dodder which passes through the romantic mountain glens of Glenismael and Castlekelly, the great abundance there of the water ouzel, or, as the peasantry there call it, kingfisher, induced me to study its habits somewhat particularly. I have repeatedly seen them rise to the surface to obtain air, which they do exactly like a grebe, merely raising the tip of the bill out of the water. The bird has several modes of diving. When seeking food it generally goes down, like most divers, head foremost, in an oblique direction, or else walks deliberately in from the shallow edge of the pool, the head bent down and the knees (tarsal articulation) crouched. When seeking refuge, however, it sometimes sinks like a stone, exactly as the great northern diver (*Colymbus glacialis*) has been observed to do,—that is, gradually, without any apparent exertion, sometimes in the midst of its most rapid flight dropping down suddenly into the water like a plummet. Its course is indifferently with or across the stream, rarely against it. It often remains under water totally submerged for fifty seconds and upwards, and during that time will proceed from 10 to 20 yards: when it comes out the water may be seen running rapidly off its plumage. It swims with great rapidity, and appears to rejoice in the water, as its true element, hardly ever alighting directly on a rock, but even after its longest flight splashing slap into the water, at the base of the stone selected as a resting-place, and then scrambling to the summit of this. In its motions in the water it more closely resembles the jackass penguin than any other aquatic bird I have had an opportunity of studying: like that

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bird (especially in the breeding season) the birds may be seen at times leaping right out of the water in their gambols. That the bird actually does possess the power of motion under water, the following notes on a wounded bird, made on the spot, abundantly prove.

"'November 29, 1850.—Bohernabreena. Wounded a water ouzel, which, as I have observed them all to do, immediately made for shore. On my going to seize him he darted into the water, running slap in; waded in after him; under water he looks quite glossy, but does not seem increased in bulk, the glossiness probably arising from the oiled state of the plumage, or else from its peculiar texture. When I first got up with the bird he was perfectly stationary at the bottom, not using any exertion to remain there (this remark applies to two other birds wounded later in the day, which also took to the water). The bird next got under a big stone, and when I poked him out on one side he ran to the other: after the lapse of a minute or so he put his head up out of the water to breathe, always keeping the stone between him and me, and when I tried to catch him he would dodge under water again, and come up on the other side. Finding that I was still chasing him he took to the stream, and went under water faster than I could follow him; he seemed to move now altogether by means of his feet, his wings hanging down behind his tail, though his motions were so quick that it was difficult to be positive as to the latter part of this observation. At times he swam in mid-water, using his wings, crossing the current several times, and seeming but little incommoded by it. All at once he turned over on his back, still possessing the power of continuing under water; struggling to regain his original position, he spun round and round, so that it appeared as though the wounded wing had suddenly failed him, and thus prevented his preserving a due equilibrium in the water. At length he came to the top, when he immediately righted and swam as at other times: every time I tried to lay hold of him he again ducked and dived down to the bottom, at first all right, and then the tumbling began again. When captured, at length, I found him merely winged.' I was enabled to confirm these observations several times that day, as I obtained seven specimens, five of which necessitated a watery chase before I succeeded in catching them, and one got clear off. I ought to explain such seeming needless cruelty in shooting so many of these harmless birds, but the specimens were required for a series of dissections at that time in hand. From these observations it would appear that both feet and wings are used in progression, the latter in mid-stream (when the bird almost looked as if it were flying), the wings doubtless being also of essential use in preserving a proper balance in the water, probably acting like the pectoral fins of a fish. The bird's progression along the bottom was certainly by means of its feet alone.

"Like many water animals the sensation in this bird appears blunted; at least two of those I winged and afterwards captured sat coolly looking at me, as though uninjured, without leaving their position, perking and jerking their tails as unconcernedly as possible, so that had I not had some confidence in my gun I should certainly have taken a second shot at them. The stomachs of all those I examined contained only insect remains. This bird is extremely common in our mountain glens: I have counted as many as ten broods in Saggart Slade, and, although called an unsocial bird, it is to be always found in pairs. These certainly keep apart, but still many pairs will be met in favourable localities in a very limited area. They keep nearly altogether to the glens. I saw the bird but once below Rathfarnham bridge, in the Dodder: this was at dark.

"To conclude. The fearlessness and curious manner of this bird, the harmlessness of its habits, the adaptive power displayed in the curious elongated valve-like opening of the nostrils, the absence of gape-bristles, the partial webs to its feet, the dense peculiar nature of the plumage, and the general dissimilarity between it and the other thrushes, form a group of characters which, taken in combination with the wild and romantic nature of the scenes it mostly loves to frequent, ought to render this bird as great a favourite with the field student as it generally is with the fisher plying his lonely task amidst its secluded haunts, and hailing as an old acquaintance the tidy little white-breasted water blackbird, as it sits jerking and posturing on a rock amidst the boiling waters, swimming on the eddying current, diving beneath its depths, chattering to its mate, or enlivening the mountain glen with its simple but plaintive strain to the fitting and appropriate accompaniment of the ceaseless bubble of the sparkling waters of the gushing mountain rill."

The Secretary read the following communication, by G. Henry Kinahan, C.E., G.S.L.:—

Description of a Starling Roost, at Rathkeale, county Limerick.

"Coming home late one evening after dark, I was surprised, whilst walking along the road to the north of Doohyle Lough, near Rathkeale, to hear a tremendous chattering, which would sometimes suddenly cease, followed by a long continuous whirr, like that of a strong rushing wind. It was then too dark to see anything, and although I knew they must be birds, yet their kind I could not say. I could hear the whirr caused by the flocks getting up nearly the whole way into Rathkeale (over a mile). The next day, on returning the same way, the noise of the preceding night was fully explained by my seeing innumerable starlings congregated about the lake. Some evenings afterwards I went on purpose to watch the birds. I arrived at the spot about half an hour before sunset, and immediately afterwards the birds began to arrive in flocks of about 300 or 400. The first flock flew round the lake, and then alighted in a field to the south; a few minutes more and another flock arrived, which, after flying round the lake, joined the first comers; these immediately rose, and all took a circuit round the fields and then alighted again. Flocks now came in thickly from all sides, the same performance being gone through at each arrival, until the flocks began to come so fast that they had no time to remain on the ground at all. The main flock then adjourned to the lake; arriving there it took two or three circuits of the lake, and then alighted among the reeds: the arrivals now were not so numerous as they had been, but many flocks still came in, and each arrival was the signal for a general move and promenade as before. This procedure was kept up till about half an hour after dark, and then ceased, so that I presume all had arrived in that time (two and a half hours). When I left a constant chattering and gossip was going on among the reeds. I could form no accurate estimate of the numbers that were there; but the reeds on the north of the lake are about a quarter of a mile long and 200 yards wide, and every reed seemed to have half a dozen on it. I could always tell, ever afterwards, when it was getting late, by seeing the starlings going Doohylewards.

"With regard to the breeding-place of starlings: in the Court-house Square, Rathkeale, at the rear of one of the dwellings, there is an old pigeon-house, in which a lot of starlings build; and the owner of the house says that they remain there summer and winter. I saw them there in the spring, I suppose over forty of them, just as tame as pigeons, about the yard and house."

On Bavarian Sporting.

By the Rev. ALFRED CHARLES SMITH, M.A.

(Continued from page 5875.)

HAVING learned from its worthy editor that my notes on Bavarian Sports are not irrelevant to the pages of the 'Zoologist,' or displeasing to its readers, I at once comply with his request, by sending the following statement of another branch of field pastime, which I have extracted from my journal dated 1840; and I think that whatever opinion may be entertained of the hare and stag and wild boar hunting (which I have described Zool. 5870), all will agree that the horse-racing at Munich is not conducted in a very sportsmanlike manner. It takes place in October at the great Munich Festival, known throughout Bavaria as the "October Fest," to which the lower classes, aye and indeed the upper classes too, look forwards with pleasure for many a week: it lasts four days, and a peculiar beer is brewed for the occasion, which is consumed then, and then only, by law, in astonishing quantities. It is held on a large open plain outside the town, and hither people flock from all the surrounding villages, and many from a considerable distance: the horse-racing is the grand feature of the principal day, and attracts the largest crowd of spectators, though there is but one race, which comes off in the afternoon.

The first thing that strikes a stranger's eye on entering the plain where the racing is to take place is the erection of various booths, near different parts of the course, called "Accident booths," whither those injured in the race may be speedily conveyed on a stretcher: this led us to suspect barbarous proceedings, for, however laudable a precaution such preparations may evince on the part of Bavarians, in England we should have taken measures to prevent accidents at all. However, the sequel showed that the Bavarians were not mistaken in anticipating mishaps, and some of the booths at least were not tenantless ere the race was done; and no wonder, as we shall see: in the first place, as there is but one race, and any horses may start that please, there is quite a crowd of competing racers; and as they go round the course three times, yet all in one heat, and as the course is about two miles in circuit, these horses, not always in the first racing condition, have had galloping enough long before their six-mile run is concluded. The course is marked out by about a dozen tall white posts, bearing flags, the everlasting sky-blue and white, which meet you at every turn in Bavaria; while ropes on one side, and men on the other, keep the open space tolerably clear. Of course nothing could be done till the king came, and patiently indeed did the spectators wait, though unusually excited too did these phlegmatic Germans become as to the result of their one race, and as to whom should be awarded the honour of victor for the year: speculate indeed they did, and freely did they back their favourites, but the speculation seemed very harmless, and the backing was confined to words of praise and encouragement, for I did not discover that their florins were hazarded on the occasion, or that any betting took place. At length the king and royal party arrived, and proceeded at once to the rough wooden platform prepared for them near the starting and winning post. Now the course was cleared by soldiers and mounted police, and the bell rang for the racers to prepare: thirty-six horses started, and they were all crowded together at a large stout pair of gates fixed across the course, the sudden throwing open of which was to be the signal for the start: the horses were, for the most part, poor lean weak animals, of neither bone nor symmetry, and all ridden by boys in their usual shabby stable dress, distinguished only by calico sleeves of red, yellow, blue, &c., which formed their colours.

Suddenly the gates are thrown open, and off they dash, one over another, helter-skelter, pell-mell: two were knocked over in the rush, and fell where they were; two bolted into the crowd at the sides, from sheer terror, leaving men, women and children sprawling on the ground: all were dashing against each other, so that you could scarcely distinguish to what particular horse any particular rider might belong: all came out pushing, tearing, jostling, kicking, rearing, amid a clatter of hoofs, while the little boys who rode them yelled and spurred and flogged, and the spectators shouted and screamed and applauded. Such was the "start;" never was such confusion or such a barbarous exhibition seen: seven or eight horses and boys were at once put *hors de combat*, and retired; the rest became one by one disentangled from the mass, found their respective places, got away in tolerable order, and came round pretty well together, considering their numbers and the length of the course; but after the first round wind began to tell, and while some gave up altogether, others might be seen straggling in a long string, with considerable intervals between them, three or four however keeping well together in the front, and the mass following 150 yards in their rear; but when they came round the third and last time all showed unequivocal signs of distress, and though the winner came in 100 yards ahead of the second, and the greater part never attempted to come in at all, they all (winner included) seemed ready to drop with fatigue, and their panting sides and heaving flanks and drooping heads showed how severe the struggle had been, and how little qualified they were—either by shape, training or condition—to run a course of six miles at the top of their speed. And now the accident-booths began to be peopled: one poor man was knocked down by a bolting racer, and had his leg broken thereby; one jockey, whose horse fell with him at the start, had his knee-pan smashed: these two I saw carried off, and I heard that several other *little* trifles of the kind had occurred. On the whole, never was there a more villainous or cruel race, though the king seemed highly delighted with the *sport* (!); and I doubt to which should be attributed the palm for barbarity, the horse-race at Munich, or that at Rome, where the horses—without riders, but with little spurs attached to their backs by springs, which goad them on faster at every stride—are driven out from the barrier with a lash, and dash down the thronged Corso, infuriated with the spur, maddened with the shouts and terrified by the actions of the excited people.

Now to say that the Bavarians are barbarous and cruel in their notions would be to shoot wide of the mark, and not be the truth; but the fact is that they do not understand sport in the English acceptation of the term: if they go out to search for game, they cannot comprehend why they should not shoot a partridge squatting on the ground; still more, why they should not fire into a whole covey of them, and bag all they can: if they can find a hare in her form, of course they will adopt that method which gives the best chance of success, and shoot her as she sits. My notes on the hare, roe and wild-boar hunting exemplify this innate ignorance of the principles of sport in the German breast, and it is further proved by the details of the horse-racing given above. But the Bavarian horse is not made for racing, or for sport of any kind; yet he is an active, strong, useful little fellow, with a broad chest, a sturdy build and a high crest, and he will trot along with a light waggon, or a hackney sledge, at a famous pace, and yet he finds no favour in the eyes of the nobles at Munich and other German capitals; there English horses are the rage, and the very name of an English horse goes a long way in his favour. The late king's brother (Duke Max) was notorious for his love of horses and horsemanship, and in his own palace he fitted up a small amphitheatre, solely for equestrian feats; and though an English "Milord" was always the grand butt of the evening, the said English nobleman being dressed in a red hunting coat, a cocked hat, and a pair of Hessian boots, armed with an enormous pair of spurs and a large hunting-whip, supposed to represent the usual modern English costume in high life,—and though he was very fond of "rost-beef," sold his wife in Smithfield, and swore a good deal, the three great characteristics of Englishmen in every foreigner's mind,—yet it was always their best rider who represented Milord; and though he said and did many ridiculous things, he never failed in performing on horseback all kinds of marvellous feats, which made German eyes open with admiration and astonishment, such an idea have they of the prowess of the English in this respect. Not only however for the Circus, but for ordinary purposes Duke Max had a notoriously fine stud of horses, most of them imported from England, and all of considerable value: at the head of this department was a pleasant smart riding-master, with whom we after exchanged a few words as we met him in our daily rides: on one occasion he was mounted on a magnificent bay horse, which he told us with honest pride was his own private property, a veritable "Englander," just imported and presented to him by the duke, and that he had already refused for him the almost fabulous sum in Germany of 100 Napoleons. As he told us this we were riding on the road near Munich, and after we had duly admired his really handsome horse, which he showed off to the best advantage, for he rode well, he wished us adieu, and, turning off the road into the neighbouring stubble (for there were no fences or ditches to intercept him), away he started at a gallop, evidently wishing to show off his horse to the English. Now, at some hundred yards from the road, there chanced to be a strong net stretched across a part of the plain, about breast high, intended to keep in roe, or hares, or for some similar purpose: the net hung from a stout rope, which was stretched from posts fixed in the ground at considerable intervals: the afternoon was foggy, and we could not see this net in the mist, nor, it seems, did the riding-master; for what was our astonishment, while watching him gallop away, to see horse and man suddenly throw a somersault in the air and alight on their respective backs, and from no apparent cause. By the time we had reached the spot the riding-master had regained his legs, shaken himself, and was not much hurt: not so the poor horse; his back was broken; and he lay struggling and plunging, but unable to get up; and though, with the help of some peasants, a rope and a stout ladder, the horse was carried to a neighbouring farm, it was of no use, and we learned from the riding-master a few days after that it had been found necessary to shoot him. But I must apologize for another digression, into which I have been inadvertently led in my attempt to draw a picture of Bavarian sport. I am well aware that the term "sport" thus applied will not meet the ideas of an Englishman; indeed the word as used by a German is not at all synonymous with the word as used by ourselves; for with regard to shooting, I was saying that the sole idea of the Germans is to *obtain* the animals they seek, without reference to any laws of honour and fairness by which we are governed: they can understand nothing of the term unsportsmanlike, as applied to *any* method of filling the bag, provided that desirable end is attained; and in their eyes to shoot the sparrow or the finch from the bush, or on the ground, is as great *sport* as to shoot the partridge on the wing; and though they take the field in most elaborate hunting costume, armed *cap-a-pie*, and with every possible and many impossible appliances to boot, the result is hardly commensurate with the preparations, and the emptying of the large embroidered game-bag—the unfailing accompaniment of every German gunner—usually displayed a goodly row of our smaller Conirostres, not unmixed with a few Dentirostres as well, relieved here and there with an occasional partridge or quail, these latter birds "rari nantes in gurgite vasto," proving the truth of the adage that "all is fish that comes to the German net."

And again, to revert once more to their horsemanship, the very glimpse of a German on horseback shows what a sorry seat he has; but as hunting is unknown there, and you may roam over the vast plains of Bavaria without meeting the ghost of a hedge or ditch, his erect immoveable seat in the saddle and military mode of riding, however ungraceful in our eyes, is perfection in theirs, and answers their purpose; and they ridicule without mercy the English style, while they totally disbelieve the possibility of fencing, as they read or hear of it in an English hunt,—a disbelief, by the way, very general on the Continent, where we have a very great character for exaggeration, and very small repute for truthfulness in these matters; and I shall never forget the shouts of ridicule, and remarks of disbelief, in which I overheard two smart young French officers indulge, when gazing through the window of a print-shop in Paris, at some admirable English pictures of hunting and steeple-chase scenes, which they did not scruple to denounce as absurd caricatures, total impossibilities and falsehoods.

But to bring this long paper to a close, I apprehend (and I think the facts narrated above will bear me out) that total innocence of the meaning of the term "sport," so essentially an English word, so utterly known on the Continent, pervades all the out-door recreations of the Germans, characterizes all their exercises in the field, and accounts for the barbarous proceedings in their horse-racing, hunting and shooting, wherein all they look to is the end aimed at, and to attain which they consider all means lawful.

ALFRED CHARLES SMITH.

Yatesbury Rectory, Calne,
February 18, 1858.

Occurrence of the Firecrested Regulus at Penzance.—Three instances of the occurrence of the firecrested Regulus have come to my notice during the past winter: all these have been noticed in a warm sheltered valley, and they appeared to frequent close hedgerows and ivy-clad pollards and bushes. The habits of this species appear more close and retired than those of the common goldcrested Regulus: the latter more frequently appears in large branched trees in open situations, whilst the firecrested Regulus seeks more permanent concealment.—*Edward Hearle Rodd; Penzance, March*, 1858.

Occurrence of the Great Plover at Penzance.—Three examples of the great plover have made their appearance during the last three months: the last I observed on Thursday, March 4th, in good condition. I have mentioned before that all the specimens which have come to my knowledge, in this district, of this summer migrant, have occurred in the *winter* months: the species is wholly (as far as I know) unknown as a summer visitor in the western counties, and I never heard — nor do I know any sportsman or naturalist, in this county or Devonshire, who has heard—the loud nocturnal whistle of this bird in the summer months. White, in his 'History of Selborne,' appears to have been well acquainted with the bird in his neighbourhood.—*Id.*

Note on Sparrows attacking Rats.—While sitting at breakfast one day, in the latter part of last December, my attention was drawn to some ten or twelve house sparrows which were fluttering about in a strange manner on the roof of an adjacent stable, at a particular spot where a water-gutter joined the roof. I presently observed a large rat emerge from the gutter on to the roof, when it was fiercely attacked by all the sparrows, which surrounded it, drove it down the roof, and appeared to have entirely got the mastery over it, when it suddenly made its escape by rushing down a water-pipe which led from the roof into a drain at the foot of the stable. The sparrows then resumed their post at the spot where this rat had first appeared; and very soon a second rat came out on to the roof, at the same place where the other one had first shown itself: the second rat was attacked by the sparrows even more fiercely than the first, and it was not without two severe struggles and one vain attempt that it succeeded in gaining the same pipe in which its predecessor had taken refuge, the sparrows appearing much disconcerted at the escape of their enemy.—*G. W. Guymer; Catton.* The above was communicated to me (in substance) by Mr. Guymer, who is

an intelligent and trustworthy person in this parish.—*J. H. Gurney; Catton, Norfolk, February* 23, 1858.

Contributions towards a Biography of the Partridge.

By the Rev. J. C. Atkinson, M.A.

(Continued from page 5985).

I have often heard it alleged that the partridge suffers much in long-continued severe weather, and that in many instances they succumb altogether. It may be so; but I must say I have never yet met with any decided instance of much apparent injury, from cold or hunger, to a partridge, in the very hardest weather I have ever known. We have had two or three winters, within the last half a dozen years, in which, from the depth of snow and the continuance of the frost, I confess I expected to meet with proofs of its power upon these birds; but with an almost solitary exception of a bird that had been wounded and had not recovered from the effects of its hurt, I cannot say my anticipations were ever fulfilled. On the contrary, the birds I have killed when snow had laid on the ground three or four weeks were as plump and fat as they have been this winter, when the ground has hardly once been fairly covered. Their chief food in seasons of severity seems to be obtained at the bottom of hedges with a south aspect, especially where there is a little oozing of water from want of drainage; indeed at any place which by the same means—the sun's rays or springing water—is kept open or cleared of snow. The grass that is found in such places is eaten closely off, and no doubt any insects or larvæ inhabiting there are eagerly picked up. Again, I have seen them continually, at such times, about the edges of a running stream; sometimes at the water's edge; more generally under the snow drifts on the bank, especially where the bank faced the sun. A place abounding with tufts of rushes, and of course therefore with more or less of moisture both above and below, is much frequented by them in severe weather; and there are many places in my beat where, from their answering the description now given, I could at any time, in continued snow and frost, find partridges day after day. That in extreme cases they may suffer extensively may be quite true, but I am convinced, from my own observation here (and a reference to my thermometrical and other weather records, carefully kept, shows how severe the weather has been for weeks together at the times of observation), that such cases are extremely rare.

There is a question of considerable interest connected with the partridge, to which I have never seen a satisfactory answer, and indeed scarcely a satisfactory attempt at an answer. I mean the nature of the injury—fatal injury—which causes the bird "to tower." In some cases the partridge shot at goes away apparently untouched; in others, gives that slight flinch which many an inexperienced person would take no note of, but which is significant enough to the sportsman's eye; in others again the legs, one or both, of the wounded bird drop, as if paralysed from the thigh joint downwards, it flies with a strange unsteady flight, wavering from side to side,—"wobbling" I have heard it called,—and after a course of a few score yards, or possibly almost half a mile, the bird soars up, sometimes to a great height, and falls almost perpendicularly, and always and most evidently quite dead. When found after towering they almost invariably are seen to lie on their back; sometimes, but by no means invariably, a little blood is oozing from the bill; but very frequently, when the quarry has been shot from some distance, there is no injury whatever apparent as it lies in your hand. It may be said it would be very easy to settle the question by dissection: let the "towered" birds be kept by themselves and carefully examined after the day's sport is over. My answer to that is, that the result would be less satisfactory than it seems likely to be; and for this reason,—that it is so very seldom only one grain of shot strikes a partridge that is brought to bag: so that, even if the shooter has the requisite skill and experience for properly examining so small a body as the partridge's, still out of a hundred cases he might find but one, or not one, with the single wound which had caused death accompanied with towering. I am, in theory only, inclined to suppose there is—at least in some cases—a twofold injury; I mean an injury to two vital parts or organs. I have no doubt when the leg or legs fall or drop that the spine is injured, and I am aware that an injury in the lower part of the heart is not accompanied with instant death.* It is therefore possible at least, that where the spine is, by the bird's actions, at once seen to be injured, the shot that inflicted the injury, or indeed another, may have also penetrated or injured the lower portion of the heart. But even when the spine is not at once seen to have sustained injury, I think that from the upward effort just before the fall there is evidence of an affection of the brain, such as would be produced by lesion of some immediately connected parts, *e. g.* the spinal chord. If this suggestion be right the occasional bleeding at the mouth is easily accounted for; the shot that inflicted the fatal injury passed on into the lungs, and hence the hæmorrhage at the bill.

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* "I found, on opening the stag, that the ball had passed through the lower part of his heart, a wound I should have imagined sufficient to have deprived any animal of life and motion instantaneously. But I have shot several deer through the heart, and have observed that when hit low they frequently run from 20 to 80 yards. If, however, the ball has passed through the upper part of the heart, or has cut the large blood-vessels immediately above it, death has been instantaneous, the animal dropping without a struggle."—*St. John's Field Notes*, ii. 90.

I am the more inclined to suppose my hypothesis may be well founded from the actions, often to be observed, of a bird shot in the head, so that the brain is obviously injured, while great vigour of action is still left to the sufferer. I have many times observed a partridge thus wounded fall, generally, but not by any means invariably, to the shot; but on going to pick it up it has taken wing again, and flown upwards in much the same aimless manner as the towering bird does, only not so high, and then again come to the ground with considerable violence. Such birds often require a second charge of shot before they can be secured.

The efforts of a wounded partridge to escape are very various, and, for the most part, very energetic. I have sometimes known a winged bird remain just where it fell; but whenever it took place it was in strong cover, such as the ling on the moor, in which locomotion was not easy. Occasionally the bird seems to be so much astonished by its fall that it remains for a space without moving, although the surface it lies upon is quite bare and unsuggestive of concealment; but usually they take to their legs immediately, and seek the nearest covert available. I have seen them take refuge in the holes of our dry stone walls, in holes scratched by rabbits, at the entrances of drains, under the overhanging banks of a water-course, among the roots of a tree, as well as in thick herbage or dense coverts; but they do not seem willing to go far into a hole or drain, not beyond reach of a man's arm,—probably deterred by the want of light before them and the unknown terrors of the dark. I have seen them, after being brought by the dog out of water, on accidentally escaping take to the water again, and perhaps seek the same hiding-place from which the dog had just before taken them. In the turnip or potato field they do not, unless much hurt in addition to the broken wing, seem to seek any definite place of shelter or concealment, but keep on the move, though it may be in a rather desultory manner; and thus they are frequently lost in such places in the earlier portion of the season: they then try the patience of the dog very severely; he is kept so long drawing and pointing, from minute to minute, and with no apparent result, that at last the most steady dog is disposed to rush in: hence many sportsmen are disinclined to use the pointer at all in seeking a wounded bird. A dog I have shot to a good deal is remarkably steady, and his fault is rather in over caution than the want of it; so much so that I can hardly at times get him to advance except in the most tediously careful way: but I have seen him so worried, in high potatoes, by the everlasting running and dodging of a winged bird, which he could never see after working it up and down the rows for a long time, that on coming on to the scent of fresh birds in another part of the field, or in another field, or possibly even another day, he required to be restrained from rushing in as soon as he found the birds were running.

Partridges only winged, or not much hurt otherwise, usually rejoin the covey at nightfall about their usual feeding place, and may be seen in company with them sometimes for weeks afterwards. If they are much hurt it is probable they hide in some hedge, and are soon found and killed by some of the common "vermin" of the fields, whether four-legged or feathered. It is remarkable how very seldom a bird much attenuated by a former wound is met with by the shooter: any one who observes the tracks of the stoat, the polecat, and more rarely the rat, in the snow, together with those of the magpie and the carrion and hooded crows, and remembers how these birds are assisted in their unintermitting search for food by their power of flight, can easily understand the reason. I do not think that a bird wounded, so that its recovery would be either tedious or uncertain, ever lives many hours.

I have sometimes been much astonished at the vast quantity of feathers seen on the ground where a partridge has fallen. Usually (unlike the ringdove, which parts with its feathers with extraordinary facility and in great quantities, a fall against a tree or through the branches of a larch causing them, even those of the tail, to fly about in clouds) a feather or two is all that marks where the bird has fallen, unless so near the shooter as to have been much cut with the shot; but occasionally the feathers lie in handfuls, as if the bird, in some paroxysm of agony, had torn them off itself. The first time I noticed this was in the case of a bird which, as I and my attendant both supposed, had fallen dead after flying some distance from the point at which it had been shot at. Under the impression that "that bird would lie still eno'," as I said to the person with me, I beat several fields before going to pick it up. On returning for it I was confounded at seeing it rise and fly away,—for I missed it in my hurry and surprise at being called on to take my gun off my shoulder to shoot it again,—but I was more surprised still to see the quantity of feathers it had left behind it in two places a yard or two apart. Even the towered bird does not shake off more than a feather or two, even if that, by its fall from a great height; and this bird had not fallen so much as from a height of 7 or 8 feet, and, as the surface on which it lay was smooth, short grass or sward, I could not account for the circumstance in any way but by supposing the bird had torn them off itself.

J. C. Atkinson.

March, 1858.

Note on the Partridge.—I was much interested in the article on the partridge, by the Rev. J. C. Atkinson (Zool. 5977), and I quite agree in his opinions with respect to the mountain partridge, so called, and the suppression of scent theory, both of which have their advocates in the 'Field' newspaper. I live in much the same country described by that gentleman, and equally wild; and I shoot partridges occasionally, on opening the crops of which nothing is found but the tops of heather, the same as is found in the crops of grouse; and where I kill them, the birds possibly, and probably, have never tasted corn of any kind, but there is no difference of plumage that I can detect, though naturally, from the food, they are a smaller bird. The only thing in which I would differ from the Rev. J. C. Atkinson is in the partridge not often nesting on heathery and waste land: I think they do with us considerably, but I have not sufficiently remarked on this habit. It would not be so difficult for the old partridge to convey her active little brood to cultivated ground, as for the wild duck, with her splayfooted offspring; and with us both duck and teal invariably nest out on the moor, or waste land, and I have known the nests quite half a mile from water, generally on high dry hills, covered with thick heather. There is another *vexata quæstio* in the 'Field,' which is being discussed at the present time,—whether the male partridge assists in incubation. I should much wish to have the opinion of so good an observer as Mr. Atkinson on this point. I have seen the two old birds squeezed together upon the nest, but the young birds were just hatched out, and ran that same day. Whether the male bird sits on the eggs, in turn with the hen bird, I have not had an opportunity of verifying.—*John Spicer; Fowley, Hants, March* 13, 1858.

Occurrence of Rare Birds near Barnstaple.—Singular to relate, although the commencement of the past winter was with us what may be termed unusually mild, birds, which are rare visitants here even when the weather is more than ordinarily severe, have appeared on our river in some numbers. I refer especially to members of the family Colymbidæ. What seemed to be a small flock of Colymbus glacialis frequented the river throughout the greater part of December; and at high water, on more than one occasion, good sport was had by parties in boats, in chasing one of these divers, and they generally had to make a good pull for it, and to expend a considerable quantity of cartridges before a specimen was hauled dead into the boat. All the birds which were shot were in an immature state of plumage. C. septentrionalis has also been shot this winter, as well as a beautiful specimen of Podiceps cornutus: this grebe is obtained on our river with some regularity nearly every winter. One day, in the early part of January, I saw a fine specimen of Lanius excubitor, but did not get very near to it: I watched it fly some distance down the valley, its gray and white plumage making it visible at a considerable distance: its flight is in a straight line, with regular dips, closely resembling that of Turdus viscivorus. I also observed a specimen of Emberiza nivalis on a marsh close to the town, a far from common winter visitant with us: the bird in question I saw frequenting the same spot for more than three weeks; his favourite haunt was a turnip field bordering on the marsh, where he associated amicably with a flock of skylarks, always leaving them on the approach of any one, and often settling on the top of a tall tree in the hedge-row, where, when the sun was shining brightly, he glistened as if a small ball of the purest snow were attached to the topmost branch.—*Murray A. Mathews; Raleigh, near Barnstaple, March* 15, 1858.

The Sea-Serpent.—To one who firmly believes in the existence of some huge marine monster of the serpent form, such as the Northmen love to descant upon (and I am not ashamed to own to such credulity, as I have already declared in my Notes on Norway, Zool. 3229), the clear and minute account of Capt. Harrington, of the sea monster which he and twenty people saw on the 12th of December last, off the coast of St. Helena, was exceedingly interesting; nor did the subsequent letter of Mr. F. Smith tend to shake my belief in the accuracy of Capt. Harrington's statement, the particulars of the two alleged appearances being so very different. I am not, however, about to argue the point, the premises before us being far too unsatisfactory and vague to argue from. I merely write to express my hope that as you have admitted the first correspondence on the subject to the pages of the 'Zoologist,' you will give both parties fair play, and insert the remaining letters, which appeared in the 'Times' of February 16th and 23rd respectively, copies of which I enclose, so that naturalists may have an opportunity of studying the case in all its bearings, before they form their conclusions.—*Alfred Charles Smith; Yatesbury Rectory, Calne, March* 5, 1858.

From the 'Times' of February 16*th.*

"Sir,—Observing in your paper of yesterday's date a letter from a correspondent relative to the marine animal commonly called the 'sea-serpent,' in the concluding paragraph of which he mentions that he has no doubt the object seen from Her Majesty's ship 'Dædalus,' in the month of August, 1848, when on the passage from the Cape of Good Hope to St. Helena, was a piece of the same seaweed observed by himself, I beg to state that the object seen from Her Majesty's ship on that occasion was, beyond all question, a living animal, moving rapidly through the water against a cross sea, and within five points of a fresh breeze, with such velocity that the water was surging under its chest as it passed along at a rate, probably, of not less than ten miles per hour. Capt. M'Quhae's first impulse was to tack in pursuit, ourselves being on a wind on the larboard tack, when he reflected that we neither could lay up for it or overhaul it in speed. There was nothing to be done, therefore, but to observe it as accurately as we could with our glasses as it came up under our lee quarter and passed away to windward, at its nearest position being not more than 200 yards from us; the eye, the mouth, the nostril, the colour and form, all being most distinctly visible to us. We all felt greatly astonished at what we saw, though there were sailors among us of thirty and forty years' standing, who had traversed most seas and seen many marvels in their day. The captain was the first to exclaim, 'This must be that animal called the sea-serpent,' a conclusion which, after sundry guesses, we all at last settled down to. My impression was that it was rather of a lizard than serpentine character, as its movement was steady and uniform, as if propelled by fins, not by any undulatory power. It was in sight from our first observing it about ten minutes, as we were fast leaving one another on opposite tacks with a freshening breeze and the sea getting up.

"I feel, Sir, I have already occupied more of your time and space than is justifiable, and have the honour to remain your obedient servant,

"AN OFFICER OF HER MAJESTY'S SHIP 'DÆDALUS.'

"February 13."

"Sir,—A letter appears in the 'Times' of to-day signed 'Frederick Smith' on the subject of the sea-serpent.

"The writer has this advantage over others who have reported the occasional appearance of what he fairly calls 'this queer fish'—that he has handled as well as seen it. Still there would seem to be a considerable variety in the genus, for, while the specimen obtained by the 'Pekin' in 1848 was 4 inches in diameter and 20 feet in length, that seen from the 'Circassian' is described, if I remember rightly, in your paper of the 4th inst., as 10 feet or 11 feet in diameter, and upwards of 200 feet in length.

"In this latter instance it was seeing only, and but a passing sight; and testimony of this kind is just that which naturalists may be slow to receive as evidence of any new fact; nevertheless the practised vision of the Circassian's commander should go for something, and, as it would appear from the following letter that Capt. Harrington is to be in town next week and ready to answer any questions, it might be worth the while of some of our philosophers to examine a little into the question of what Capt. Harrington and his officers really did see.

"I have the honour to be, Sir, your most obedient servant,

"W. A. B. HAMILTON.

"Blackheath, February 12."

"14, South Castle Street, Liverpool, February 8.

"Dear Sir,—I am in receipt of your favour of the 6th of February, and should be glad if my communication to the 'Times' might be instrumental in dispelling many doubts respecting the existence of such a monster as that described by myself and officers.

"I communicated it to Capt. Schomberg, R.N., of this place, in the course of conversation, who advised me by all means to send a copy of it to the 'Times.'

"Notwithstanding the assertions of men of science to the contrary I am now sure that such animals exist. I could no more be deceived than (as a seaman) I could mistake a porpoise for a whale. If it had been at a great distance it would have been different; but it was not above 20 yards from the ship.

"I am of opinion that this animal makes its appearance at the surface at long intervals only. I am informed by Messrs. Lamport and Holt, shipowners of this place, that one of their captains reported a similar thing about two years ago, off the Island of St. Helena; but they took no further notice of it, supposing, as your friends seem to do, that he might have been deceived.

"Twenty people, including Mrs. Harrington and my two officers, saw it as distinctly as I now see the gas light which I am writing by. I am well known in London, having commanded a steam transport during the Russian war belonging to the North of Europe Steam Navigation Company.

"Capt. Claxton, R.N., of the Priory, Battersea, is a personal friend of mine. I am also well known to Sir Colin Campbell, who is now in the East. My present ship is 1064 tons new measurement, and a new ship, of which I own a good part myself. There are, therefore, many reasons (in addition to my holding a first-class certificate in the mercantile marine) to hinder me from propagating a report which can do me no good, and, if untrue, do injury to science in the room of assisting it to elicit the truth in so important a matter as the discovery of the inhabitants of the deep.

"I shall be in town for three or four days in the early part of next week. A letter addressed to me at the Jerusalem Coffee-house will meet with attention, and, if my limited time permit, I should be glad to have an interview with yourself, or any of your friends who might wish to have a verbal explanation in this matter.

"I have the honour to remain, Sir, your obedient servant,

"G. H. Harrington.

"To Rear-Admiral W. A. B. Hamilton."

From the 'Times of February 23rd.

"Sir,—I beg to explain, in answer to Rear-Admiral Hamilton, that in the water, before being divested of its extraordinary-looking living appendages, the diameter of my marine capture was above three feet. Some buckets full of splendidly-coloured blue and crimson crabs, varying from the size of a shilling to that of a man's hand, were collected from it; and that this quantity of such animal life could be furnished with a refuge in the mats of snaky-looking creatures which constituted the moving monstrous-looking external will assist those who read my account in believing what I before stated, that even when the object was laid on deck we had difficulty in making out what it was. Now, sea-weeds of gigantic growth abound near the islands of the group of Tristan d'Acunha. From decay or other causes, these will from time to time become detached at the roots, and with their living attachments will then, floating horizontally, be carried by the well-known currents into the very positions where the sea-serpent delights in exhibiting himself. It is not disputed that such was the monster picked up by the boat's crew of my ship. I do not doubt that more monstrous specimens may be seen from time to time, and I expect that your insertion of this correspondence will cause more attention to be given to their capture than, as on board of Her Majesty's ship 'Dædalus,' to the forming of sundry 'guesses,' causing the observers to 'settle down' to the conclusion, 'This must be the animal called the sea-serpent.' Had the monster I described not been taken, I should have believed, as firmly as Capt. Harrington does, that I could confirm the statement of the commander of the 'Dædalus,' and that 'the animal belonged to the serpent tribe.'

"Everybody knows what different notions are generated by momentary and unexpected appearances of things as compared with the things themselves when examined. Perhaps the nostril of the 'Dædalus' sea-serpent was seen in the recollection of one spectator, the mouth in that of another, the eye in that of another, and so on. I take leave to question the possibility of these 'being most distinctly visible' when the object at its 'nearest position' was 200 yards distant, the sea getting up, and the observers travelling in an opposite direction, the passing of the two being apparently at the rate of twenty miles an hour. Naturalists will say whether an animal to answer to the habits and attributes of that in question would have a nostril.

"I am sure that Capt. Harrington, of the 'Castilian,' saw an extraordinary object, and described it according to his impression, and having a great respect for 'a first-class certificate in the mercantile marine' (as I hold a 'first-class extra' myself), and also for 'Sir Colin Campbell, now in the East,' to whom Capt. Harrington is so well known, I feel equally sure that, so accredited, he has published his account with no other than a good object. Nevertheless, these circumstances do not prove to me that Capt. Harrington saw the sea-serpent, because that 'queer fish' so very nearly and completely took me in until I took him in.

"I am, Sir, your most obedient servant,

"Fred. Smith.

"Newcastle-on-Tyne, February 19."

On the Geographical Distribution of Butterflies in Great Britain.

By T. Boyd and A. G. More, Esqrs.

The present paper originated in a desire to ascertain how far the plan of Mr. H. C. Watson's 'Cybele Britannica' is available in the sister science of Zoology, and for our experiment we have selected the butterflies as the best known and most generally studied of British insects. It is now offered to entomologists as a sketch which future observation may fill up,—as something to which the youngest, if only he be accurate, may make useful additions, and so aid in forming a list which shall be valuable in a scientific point of view.

Any one at all acquainted with Entomology, its present immature condition, its peculiar liability to error, and the state of feeling among collectors, will easily perceive that nothing beyond a bare sketch of the distribution of any family of insects is at present possible. We are aware that the accompanying list might have been made much more complete had a wider range of authorities been taken; but knowing how much doubt attaches to many names occurring in the best works, and the amount of inaccuracy to be found in many local lists, it appeared to us that more would be lost in value than gained in completeness by quoting authorities indiscriminately: we have therefore confined ourselves to one recent work, which we believe to be compiled with great care, *viz.* Stainton's 'Manual of British Butterflies,' and for the rest we have relied upon the authority of the following entomologists, to whom our best thanks are due, and whose names will be a sufficient gurantee for the accuracy of their information:—Messrs. Allis, Ashworth (since deceased), Bond, Buxton, Doubleday, Edleston, Harris, Logan, Salt, and Vaughan. Two or three localities are also added on the authority of McGillivray's 'Natural History of Dee-Side.'

The names adopted are those of Doubleday's 'Synonymic List,' which we believe are at the present time most generally used in this country. The particulars of the "Provinces," into which Mr. Watson has divided Great Britain, are enumerated below:—

1. Peninsula: Cornwall, Devon, Somerset.
2. Channel: Dorset, Wilts, Isle of Wight, Hants, Sussex.
3. Thames: Kent, Surrey, Berks, Oxford, Bucks, Middlesex, Herts, Essex.
4. Ouse: Suffolk, Norfolk, Cambridge, Bedford, Huntingdon, Northampton.
5. Severn: Gloucester, Worcester, Warwick, Stafford, Salop, Hereford, Monmouth.
6. South Wales: Glamorgan, Caermarthen, Pembroke, Cardigan, Brecon, Radnor.
7. North Wales: Montgomery, Merioneth, Caernarvon, Denbigh, Flint, Anglesea.
8. Trent: Leicester, Rutland, Lincoln, Notts, Derby.
9. Mersey: Cheshire, Lancashire.
10. Humber: York.
11. Tyne: Durham, Northumberland.
12. Lakes: Westmoreland, Cumberland (Isle of Man).
13. West Lowlands: Dumfries, Kirkcudbright, Wigton, Ayr, Lanark, Renfrew.
14. East Lowlands: Berwick, Roxburgh, Peebles, Selkirk, Haddington, Edinburgh, Linlithgow.
15. East Highlands: Fife, Kinross, Clackmannan, Stirling, Perth, Forfar, Kincardine, Aberdeen, Banff, Moray (including Nairn, Elgin, and the North-east of Inverness).

16. West Highlands: Dumbarton, Argyle, Inverness, westward of Loch Erricht, Isles adjacent, from Arran to Skye.
17. North Highlands: Ross, Cromarty, Sutherland and Caithness.
18. North Isles: Hebrides, Orkney, Shetland.

It is with these provinces alone that the present paper has to do, and no attempt has been made to work out an estimate of the counties, or the latitude or altitude, to which the various species are confined, there being at present no sufficient materials for the purpose.

Papilio Machaon. Area * 2 * 4. Marshes, local. A handsome insect, frequently bred in numbers, and therefore occasionally taken on the wing in various localities.

Pieris Cratægi. Area 1 2 3 4 5. Woods and forests, local.

P. Brassicæ. Area 1 2 3 4 5 * 7 8 9 10 11 12 13 14 15 16. This and the two following species seem attached to cultivated land, and are probably common everywhere. Mr. Buxton says that he saw white butterflies in Sutherland (17), but did not notice the species.

P. Rapæ. Area 1 2 3 4 5 * 7 8 9 10 11 12 13 14 15 16.

P. Napi. Area 1 2 3 4 5 * 7 8 9 10 11 12 13 14 15 16.

P. Daplidice. Area * * 3 4 5. *Stainton's Manual.*

Anthocharis Cardamines. Area 1 2 3 4 5 * 7 8 9 10 11 12 13 14 * 16.

Leucophasia Sinapis. Area 1 2 3 4 5 * * 8 * 10 * 12. Woods and forests.

Gonepteryx Rhamni. Area 1 2 3 4 5 * * 8 9 10 11 12. Woods and cultivated land.

Colias Edusa. Area 1 2 3 4 5 * * 8 9 10 11 12 * * * 16. Cultivated land and downs. This and the next species are most plentiful near the coast.

C. Hyale. Area 1 2 3 4 5 * * 8 9 10. Cultivated land and downs.

Thecla Betulæ. Area 1 2 3 4 5 * * 8. Woods.

T. Pruni. Area * * * 4. Woods, local.

T. W-album. Area 1 * 3 4 5 * * * * 10. Hedge-row elms.

T. Quercus. Area 1 2 3 4 5 * 7 8 9 10 * 12 * * * 16. Woods.

T. Rubi. Area 1 2 3 4 5 * 7 8 9 10 * 12 13 * 15 16 17.

Chrysophanus dispar. Area * * * 4. Marshes, local; apparently extinct.

C. Phlæas. Area 1 2 3 4 5 * 7 8 9 10 11 12 13 14 15 16.

Polyommatus Argiolus. Area 1 2 3 4 5 * 7 * 9 10 * 12. Woods.

P. Alsus. Area 1 2 3 4 5 * 7 8 9 10 * 12 13 14 15 16. Downs.

P. Acis. Area * 2 * 4 5. Cultivated ground, local. 2, 4, *F. Bond.* 5, *Stainton's Manual.*

P. Ægon. Area 1 2 3 4 5 * * * 9 10. Uncultivated ground.

P. Alexis. Area 1 2 3 4 5 * 7 8 9 10 11 12 13 14 15 * * 18.

P. Adonis. Area 1 2 3 * 5. Downs, on chalk.

P. Corydon. Area 1 2 3 4 5 * * 8. Downs, on chalk.

P. Arion. Area 1 * * 4. Local.

P. Agestis. Area 1 2 3 4 5 * 7 * * 10.

P. Artaxerxes. Area * * * * * * * * * 10 11 * 13 14 15. The area of this insect begins where that of Agestis ends: is it a species?

Nemeobius Lucina. Area * 2 3 4 5 * * 8 * 10 * 12 13. Woods, local.

Limenitis Sybilla. Area * 2 3 4 5. Woods and forests.

Argynnis Paphia. Area 1 2 3 4 5 * 7 8 * 10 11 12. Woods.

A. Aglaia. Area 1 2 3 4 5 * 7 8 9 10 11 12 13 * 15 16. Woods.

A. Adippe. Area 1 2 3 4 5 * * 8 * 10 * 12 * * * 16. Woods.

A. Lathonia. Area 1 2 3 4 5. Cultivated land, local. (*Stainton's Manual*). Other species have frequently been mistaken for this, and it probably often escapes notice from its similarity to them.

A. Euphrosyne. Area 1 2 3 4 5 * 7 8 9 10 * 12 13 * 15 16 17. Woods.

A. Selene. Area 1 2 3 4 5 * 7 8 9 10 * 12 13 14 15 16 17. Woods.

Melitæa Artemis. Area 1 2 3 4 5 * * 8 9 10 * 12 13 14 * 16. Marshes, local.

M. Cinxia. Area * 2 3 4 * * * * * * * * * * 15. Uncultivated land, local.

M. Athalia. Area 1 * 3 4 5. Woods, local.

Vanessa Cardui. Area 1 2 3 4 5 * * 8 9 10 * 12 13 14 15 16. The whole of this genus seems to prefer cultivated land.

V. Atalanta. Area 1 2 3 4 5 * 7 8 9 10 * 12 13 14 15 16.

V. Io. Area 1 2 3 4 5 * 7 8 9 10 * 12 13 14 15 16.

V. Antiopa. Area 1 2 3 4 5 * * 8 9 10 * 12 * 14.

V. Urticæ. Area 1 2 3 4 5 * 7 8 9 10 11 12 13 14 15 16 17.

V. Polychloros. Area 1 2 3 4 5 * * 8 9 10 * 12.

V. C-album. Area 1 2 3 4 5 * 7 8 9 10 11 12. Local, not found in places where it was once common.

Apatura Iris. Area * 2 3 4 5 * * 8. Woods.

Arge Galathea. Area 1 2 3 4 5 * * 8 * 10. Waste ground, local.

Erebia Cassiope. Area * * * * * * * * * * * 12 * * 15. Mountains, local.

E. Blandina. Area * * * * * * * * 9 10 11 12 13 14 15 16. Waste ground, local.

Satyrus Semele. Area 1 2 3 4 5 * 7 * 9 10 11 12 13 14 15 16. Waste ground, local.

S. Janira. Area 1 2 3 4 5 * 7 8 9 10 11 12 13 14 15 16.

S. Tithonus. Area 1 2 3 4 5 * 7 8 9 10 * 12.

S. Megæra. 1 2 3 4 5 * 7 8 9 10 * 12 13.

S. Ægeria. Area 1 2 3 4 5 * 7 8 9 10 * 12 * 14 * 16. Woods.

S. Hyperanthus. Area 1 2 3 4 5 * 7 8 9 10 * 12 13 14 15 16. Damp woods.

S. Davus. Area * * * * 5 * * * 9 10 * 12 * 14 15 16 17 18. Local.

S. Pamphilus. Area 1 2 3 4 5 * 7 8 9 10 11 12 13 14 15 16.

Steropes Paniscus. Area * * * 4 * * * 8. Woods, local.

Pamphila Linea. Area 1 2 3 4 5 * * 8 * 10 * * * 14.

P. Sylvanus. Area 1 2 3 4 5 * 7 8 9 10 * 12 13 14.

P. Comma. Area 1 2 3 4 * * * * * 10. Downs, local. In Stainton's 'Manual' Scarborough is given as a locality for this insect, but Mr. Allis says that he has frequently examined specimens, said to be common, taken in Yorkshire, but they invariably proved to be Sylvanus.

P. Actæon. Area 1 2 * * 5. 5, *Stainton's Manual.* Local.

Syrichthus Alveolus. Area 1 2 3 4 5 * * 8 * 10 * * 13 * * * 17.

Thanaos Tages. Area 1 2 3 4 5 * 7 8 9 10 11 12 13 * * 16 17.

(*Chrysophanus Chryseis.* Area * 2 3. *Stainton's Manual*).

Having thus applied Mr. H. C. Watson's formula, as far as "Provinces" are concerned, we will next endeavour to carry out the system of the 'Cybele Britannica' a little further, by referring the several insects to their respective "Types of Distribution," premising that, with increased observation, a few changes may become necessary, and we may then hope to see Mr. Watson's plans carried out, for the butterflies at least, into some of the other details, which he has successfully employed for our flowering plants.

I. Twenty-three species are assigned to the "British Type," as they appear to be widely distributed throughout Great Britain, though their range is scarcely so universal as that of the plants which belong to the same section. They represent our commonest butterflies, and all occur in Scotland, many of them reaching as far as its northern extremity: three, however (Argynnis Euphrosyne and Selene, and Syrichthus Alveolus), are not enumerated in a list of Irish butterflies with which we have lately been favoured by a correspondent.

The members of the "British Type" are —

Pieris Brassicæ
„ Rapæ
„ Napi
Anthocharis Cardamines
Thecla Rubi
Lycæna Phlæas
Polyommatus Alsus
„ Alexis
Argynnis Aglaia
„ Euphrosyne
„ Selene
Melitæa Artemis
Vanessa Cardui
„ Io
„ Atalanta
„ Urticæ
Satyrus Semele
„ Janira
„ Ægeria
„ Hyperanthus
„ Pamphilus
Thanaos Tages
Syrichthus Alveolus.

A few of these are local: Melitæa Artemis and Syrichthus Alveolus affect marshy situations; Polyommatus Alsus, Satyrus Semele and Thanaos Tages seem attached to a dry or calcareous soil; Argynnis Aglaia, A. Selene and Thecla Rubi can hardly be called common.

Small as this list is already, it is believed that by strictly following Mr. Watson's definition several of its species might be transferred to the next group.

II. The "English Type" comprises twenty-four species, all of which are more abundant in the Southern "Provinces," decreasing in frequency northwards.

Thecla W-album (E.)
Polyommatus Acis (E.)
„ Arion (E.)
Melitæa Athalia (E.)
Vanessa Antiopa (E.)
„ Polychloros (E.)
„ C-album (E.)
Polyommatus Agestis (E.)
Nemeobius Lucina (E.)
Argynnis Adippe (E. S.)
Pieris Cratægi (E. I.)
Colias Hyale (E. I.)
Thecla Betulæ (E. I.)
Leucophasia Sinapis (E. I.)
Gonepteryx Rhamni (E. I.)
Polyommatus Argiolus (E. I.)
„ Ægon (E. I.)
Argynnis Paphia (E. I.)
Satyrus Tithonus (E. I.)
Colias Edusa (E. S. I.)
Thecla Quercus (E. S. I.)
Satyrus Megæra (E. S. I.)
Pamphila Sylvanus (E. S. I.)
„ Linea (E. S. I.)

The four first, though very local, seem to have their proper place here, and not in the "Germanic Type," as they do not evince a sufficient preference for the Eastern side of England: they, with the next six, are said to be absent from Ireland.* Six—Colias Edusa, Pamphila Sylvanus and Linea, Thecla Quercus, Satyrus Megæra and Argynnis Adippe—reach Scotland, but only its southern portion. One, A. Adippe, is found in Scotland, though wanting in Ireland.

The ascertained range of S. Megæra does not yet warrant its being transferred to the "British Type."

III. In proceeding to illustrate the third group, or "Germanic Type," comprising the South-eastern species, it is necessary to notice the difficulty of drawing a line between it and the former (or "English"). For instance, Pieris Cratægi and Thecla Betulæ might, but for their occurrence in Ireland, be referred to the "Germanic," while Argynnis Lathonia and Pieris Daplidice approach the "English." Thirteen species belong to the "Germanic Type," its more local members being

Lycæna dispar
Thecla Pruni
Papilio Machaon
Melitæa Cinxia
Steropes Paniscus

And those with a wider range, still however preserving the same greater frequency on the East side and towards the South-east corner of England,

Pieris Daplidice
Argynnis Lathonia
Limenitis Sibylla
Apatura Iris
Polyommatus Adonis
" Corydon
Pamphila Comma
Arge Galathea.

None of these thirteen have been found in either Scotland or Ireland.

IV. The "Atlantic" or South-western Type has but one representative, *viz.*

Pamphila Actæon.

It is wanting in Ireland.

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* Polyommatus Agestis and Nemeobius Lucina have, with Polyommatus Corydon and Melitæa Athalia, been recorded as Irish, but there is no recent authority for their occurrence.

V. The "Scottish" or Northern Type contains three species,—

Polyommatus Artaxerxes
Erebia Blandina.
Satyrus Davus

VI. The "Highland" or Mountain Type one only,

Erebia Cassiope.

It is remarkable that, of the last four, two only—Satyrus Davus and Erebia Cassiope—reach Ireland, whereas all of them occur in England.* When surprise is expressed at the poverty of our mountain Fauna, it should be remembered that it is analogous to that of the Scandinavian, not the European, Alps.

If we proceed to institute a comparison between our butterflies and flowering plants, as to the respective proportions of the several "Types," we shall find there are—

	Among Butterflies.	In Flowering Plants, according to Mr. Watson's Estimate.	Proportion.
British Type (23)......	2-5ths or nearly 2-5ths...	2-5ths..............	The same.
English Type (24) ...	2-5ths nearly..............	1-5th	Double.
Germanic Type (13)...	1-5th	1-15th to 1-20th...	Thrice as many.
Atlantic Type (1)......	1-65th	1-15th to 1-20th...	One-fourth.
Scottish Type (3)......	1-20th	1-20th	The same.
Highland Type (1) ...	1-65th	1-15th	One-fourth.

So that the greatest contrast is presented by the striking preponderance of the "Germanic" and "English" Types among the insects: on the other hand the "Atlantic" element (which in plants nearly balances the "Germanic") is in the butterflies quite insignificant, and the "Highland" is equally small.

The same thing becomes still more evident on adding together the "Germanic" and "English" sections, as they amount to more than one-half of the whole number against a quarter in plants: from which it seems reasonable to conclude that our butterflies are much more unequally and locally distributed than our flowering plants. That the insects are also much more influenced by a warmer temperature is plain, both from the higher numbers of southern species and because Ireland has more than twice as many of them as Scotland.[*] It is believed this will be still further confirmed by a comparison drawn between Great Britain and any central portion of the European Continent.

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* Supposing the English P. Salmacis to be a mere variety of P. Artaxerxes.

The readers of Forbes's Essay will find, in the relative numbers of Highland and Lowland species, nothing but what agrees with the hypothesis that our alpine Fauna is the more ancient, and has descended to us from a period when the summits of our mountains existed as islands, or members of a chain of islands, communicating with Scandinavia across the "Glacial Sea." In such a case we should expect to find the alpine species few in number, since their area was restricted from the first and its climate boreal: the insects, too, may have been less able than contemporary plants to survive the changes of temperature and the accidents of geological disturbances. On the other hand, the higher numbers of the "British," "English" and "Germanic" Types point to a more recent derivation from the adjoining Continent.

The disproportion, however, among butterflies, between the "Atlantic" and "Germanic" Types, is worthy of attention, in so far as these two nearly agree with Forbes's "Norman" and "North-French" Floras, both of which he supposed (with some reservations) to be still older than the "Scandinavian" or "Highland." Now the high numbers of the "Germanic" Type, the difficulty of separating it satisfactorily from the "English," together with the fact of its plants being found (some of them abundantly) in the centre of Germany, lead to the conclusion that it is but a branch of and contemporaneous with the central European, Forbes's "Great Germanic" Flora.

Looking, on the contrary, at the "Atlantic" Type, with its fewness of insect species, at the more clearly southern character of its Flora (which in great measure consists of plants found towards the Atlantic and Mediterranean coasts, and absent from Germany), and at its being

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[*] The Irish species are thirty-six:— The Scotch species are thirty-three:—

The Irish species are thirty-six:—		The Scotch species are thirty-three:—	
British Type.........	20	British Type.........	23
English Type	14	English Type	6
Scottish Type	1	Scottish Type	3
Highland Type......	1	Highland Type......	1

Not one is found in either Scotland or Ireland that does not also occur in England. That Ireland, with fewer plants than Scotland, should have more butterflies, shows that the number of the latter is less influenced by western position than might have been expected.

on our shores further isolated from its original abode, we cannot help inclining to the belief that it presents a distinctness of feature which the "Germanic" does not, and approaches closely in character, perhaps also in age, to the Flora of the West of Ireland, which is said to be the most ancient of all that still exist in Great Britain.

In conclusion, we would venture to recommend Mr. Watson's system to the consideration of those who are engaged in the study of other branches of British Natural History: we have no doubt that it might be applied, with most interesting results, to the land mollusks and other *stationary* members of our Fauna; and the advantages of conforming to a plan already in use it is needless to enlarge upon.

Much, however, remains to be done before the "Cybele" of even our butterflies can be considered complete: we can only hope that a point has been attained upon which future observation may be brought to bear.

T. BOYD.
A. G. MORE.

British Geometrina, as arranged and named in M. Guenée's Second Volume of the Geometræ of the whole world.—

- TIMANDRA
  - Amataria
- CABERA
  - Pusaria
  - Rotundaria
  - Exanthemaria
- CORYCIA
  - Temerata
  - Taminata
- ALEUCIS
  - Pictaria
- MACARIA
  - Alternata
  - Notata
  - Liturata
- HALIA
  - Wavaria
- STRENIA
  - Clathrata
- PANAGRA
  - Petraria
- NUMERIA
  - Pulveraria
- SCODIONA
  - Belgiaria
  - *Favillacearia*, D. L.
- SELIDOSEMA
  - Plumaria
- FIDONIA
  - Carbonaria
  - Atomaria
  - Piniaria
  - Pinetaria
  - *Quinquaria*, D. L.
  - Conspicuata
- MINOA
  - Euphorbiata
- SCORIA
  - Dealbata
- STERRHA
  - Sacraria
- ASPILATES
  - Strigillaria
  - Citraria
  - Gilvaria
- ABRAXAS
  - Grossulariata
  - Ulmata
- LIGDIA
  - Adustata
- LOMASPILIS
  - Marginata
- PACHYCNEMIA
  - Hippocastanaria
- HYBERNIA
  - Rupicapraria
  - Leucophearia
  - Aurantiaria
  - Defoliaria
  - Progemmaria
- ANISOPTERYX
  - Æscularia

CHEIMATOBIA
- Brumata
- Boreata

OPORABIA
- Dilutata
- Filigrammaria
- *Autumnaria*, D. L., non *Boisd.*, var. præc. teste *Gn.*

LARENTIA
- Didymata
- Multistrigaria
- Cæsiata
- Ruficinctata
- *Flavicinctata*, Steph., D. L.
- Salicata
- Olivata
- Pectinitaria

EMMELESIA
- Affinitata
- *Rivulata*, D. L.
- Alchemillata
- *Hydraria*, D. L.
- Albulata
- Decolorata
- Tæniata
- Unifasciata
- *Bifasciata*, D. L., var. præc. teste *Gn.*
- Ericetata
- Blandiata

EUPITHECIA
- Venosata
- Consignata
- Linariata
- Pulchellata
- Centaureata
- Succenturiata
- *Subfulvata*, D. L., var.
- *Cognata*, D. L., var.
- Subumbrata
- Pernotata
- Plumbeolata
- Haworthiata, *Doub.*, n. s.
- Pygmæata
- Helveticaria
- Satyrata

EUPITHECIA
- Egenaria
- Castigata
- Pimpinellata
- Pusillata
- Irriguata
- Denotata
- Innotata
- Indigata
- Constrictata
- Nanata
- Subnotata
- Vulgata
- Expallidata
- Absynthiata
- Minutata
- Assimilata
- Tenuiata
- Subciliata
- Dodoneata
- Abbreviata
- Exiguata
- Sobrinata
- Togata
- Pumilata
- Coronata
- Rectangulata
- Debiliata

COLLIX
- Sparsata

LOBOPHORA
- Sexalata
- Hexapterata
- Viretata
- Lobulata
- Polycommata

THERA
- Juniperata
- Simulata
- Variata
- Firmata

YPSIPETES
- Ruberata
- *Literata*, Don ? Gn.
- Impluviata
- Elutata

MELANTHIA
- Rubiginata

MELANTHIA
- Ocellata
- Albicillata

MELANIPPE
- Hastata
- Tristata
- Procellata
- Unangulata
- *Amnicularia*, D. L.
- Rivata
- *Alchemillaria*, D. L., var. præc. teste *Gn.*
- Montanata
- Galiata
- Fluctuata

ANTICLEA
- Sinuata
- Rubidata
- Badiata
- Derivata
- Berberata

COREMIA
- Munitata
- Propugnata
- Ferrugata
- *Unidentaria*, D. L., var. præc. teste *Gn.*
- Quadrifasciaria

CAMPTOGRAMMA
- Bilineata
- Fluviata
- Gemmata

PHIBALAPTERYX
- Tersata
- Lapidata
- Lignata
- Polygrammata
- Vitalbata

SCOTOSIA
- Dubitata
- Vetulata
- Rhamnata
- Certata
- Undulata

CIDARIA
- Psittacata
- Miata

CIDARIA
Picata
Corylata
Ruptata, D. L.
Sagittata
Russata
Immanata, D. L., var. præc. teste *Gn.*
Suffumata
Silaceata
Prunata
Testata
Achatinata, D. L.
Populata
CIDARIA
Fulvata
Pyraliata
Dotata
Marmorata, D. L.
PELURGA
Comitata
Chenopodiata, D. L.
EUBOLIA
Cervinaria
Mensuraria
Palumbaria
Bipunctaria
Lineolata
CARSIA
Imbutata
ANAITIS
Plagiata
Præformata ?
LITHOSTEGE
Nivearia
CHESIAS
Spartiata
Obliquaria
TANAGRA
Chærophyllata.

—*Communicated by Henry Doubleday, Esq.* [The names added in *Italics* are either those used in Mr. Doubleday's 'List' for the same species, or are supposed by M. Guenée to be varieties of the species the name of which precedes each in Roman characters.]

Tephrosia laricaria.—I have now by me the pupæ of laricaria, which I hope shortly to see in their last stage. The larvæ, which I beat from the larch while in Lancashire last August, are so varied in colour that it would not be possible to give an accurate description of them unless they were before me. Having also taken and bred the larva of crepuscularia (which feeds upon the oak), I state as my firm belief that laricaria is not a variety of it. I have taken crepuscularia in the greatest abundance, both in this neighbourhood and elsewhere in the Midland Counties, but never took a single laricaria nor one intermediate variety.—*Henry Burney; Wavendon Rectory, February* 20, 1858.—*From the 'Intelligencer.'*

Gnophos obscuraria.—With regard to obscuraria, as far as my experience goes, I should decidedly incline to the opinion that it is a distinct species, and not a variety of pullaria. About eighteen years ago, when mothing on Parley Heath, in Hampshire, in company with Mr. Dale, we found the former insect in the most wonderful profusion that can be conceived. They were at rest in the dry mounds of cut turf or peat, on brushing the sides of which with the net they flew out in the most distracting abundance. I caught a great number, all of which were exactly alike,—no intermediates between that and pullaria. Indeed, I have generally considered obscuraria to be a heath insect. Pullaria I have usually met with in stone quarries and chalk pits. Near Bath it is not at all uncommon in the large free-stone quarries, and among the Bath Hampton Rocks, also in Portland, and is quite common in the chalk pits on the South Downs near Lewes and Brighton. Neither occur in this part of England. —*Id.*

Gnophos pullaria.—The larva of this species hybernates about half fed; it begins to feed again in April. I found two some years since near Matlock; they fed up upon the salad burnet (*Poterium sanguisorba*, L.), and from one of them I bred the perfect insect. They closely resembled Hübner's figure of the larva of G. obscuraria. I found them by pulling up the grass and low-growing plants by the roots. The larva conceals itself by day. There was a great deal of Helianthemum vulgare intermingled with the Poterium sanguisorba in the locality where I found them.—*H. Harpur Crewe; Stowmarket, February* 20, 1858.—*Id.*

Larva of Harpalyce sagittaria.—Seeing by the 'Intelligencer' that the larva of H. sagittaria appears to be unknown, I beg to send you the following description with particulars:—Larva pale drab, with several fine and distinct lines of a dark drab colour running parallel down the sides; a chain of rhombus-shaped markings of the same colour down the centre of the back, one on each segment, with a central spot in each also dark drab. In July, 1855, I captured a female, which laid nearly thirty eggs; they hatched in about ten days. I fed the larvæ upon arrow-head (*Sagittaria*); they seemed to prefer the flowers, but they ate sparingly and grew very slowly, as by the end of September they appeared only three parts grown; their number had also diminished to about eight or nine. I then gave them to Mr. Bond, who kept them alive till October, but they afterwards died. From my failure to rear them I conclude either that the larva hybernates or that Sagittaria is not their proper food. —*Thomas Brown; 13, King's Parade, Cambridge, March* 5, 1858.—*Id.*

Flavicinctaria and Cæsiaria.—In M. Guenée's work on Geometræ, I understand he unites two species, and makes them varieties of one and the same; I allude to flavicinctaria and cæsiaria. I believe I can prove that these species are distinct: when in Scotland, last summer, I took and examined fully 1000 specimens of cæsiaria, and in no instance could I find any of that beautiful deep yellow, which is one of the most striking colours in flavicinctaria. In the month of July I took some larvæ feeding on the common heath: they were new to me; they were of a dark colour, with some purple angular markings on the back: in August these produced cæsiaria. This insect swarms on all the mountains in Perthshire, and is equally abundant in the valleys and on the mountain tops: wherever there is heath there is cæsiaria. After this species has been out about three weeks, if you go up the burns or mountain water-courses, but at some elevation, you will find flavicinctaria just out. Of course, as cæsiaria is everywhere, you will see them along with flavicinctaria, but you will not find the latter species at any distance from the water-courses, as the larva feeds on Saxifrage, which only grows in the burns. Another instance of the specific distinctness of the insects is that, though they are both found at rest on the faces of rocks, cæsiaria is excessively restless, and flies off before you can get to them to box them, but all the flavicinctaria are left behind.—*H. J. Harding; 1, York Street, Church Street, Shoreditch, March* 8, 1858. [M. Guenée, in his Errata and Addenda, admits that our flavicinctata must be considered distinct, but doubts whether it be the Continental species known by that name. However, Freyer, who treats of the larva of the Continental flavicinctata, says it feeds on Saxifraga petræa; the larva he figures as dull green, with a row of reddish white dorsal triangles.]—*Id.*

Undescribed Geometræ Larvæ.—I have repeatedly bred Cabera rotundaria from the larva, which feeds on birch: it is very similar to the larva of pusaria, but, I think, is rather thicker towards the abdomen, and I believe does not vary from pale green to quite brown, as the latter does: the larva of rotundaria is pale green. I bred a specimen of Bapta temeraria from a beautiful bright green larva, with a red head and marked with red on each segment: it was beat from a wild cherry tree at Joydon Wood, in September, and the insect appeared last June. The larva of Cheimatobia borearia is not uncommon at West Wickham, in June, on birch: this larva is very similar to that of brumaria, but more transparent and the lines less distinct; it has a brown head, thus differing from the larva of brumaria, the head of which is always green. I have bred several specimens of Ypsipetes ruberaria from larvæ obtained on Wimbledon Common in September; they fed in curled-up leaves of sallow: it is a dirty white or grayish larva, and is slightly hairy. Of Phæsyle miaria I have bred several specimens from larvæ obtained from oak and birch, in Headley Lane, in the middle of August: it is a long slender green larva, with two forks projecting beyond the abdomen.—*W. Machin; 35, William St., Globe Fields, Mile End, March* 9, 1858.—*Id.*

Undescribed Geometra Larvæ.—I bred a specimen of C. miata this autumn from a larva beaten off alder, full fed August 18: it so closely resembled the larva of C. russata that at the time I did not detect the difference: the pupa was covered with a bloom like that of C. trapetzina. I had seven or eight larvæ of C. obliquaria in 1856, and bred the perfect insect in 1857: I beat them off broom (*Spartium scoparium*) towards the middle of August: this larva closely resembles that of C. spartiata, but is a much darker green, and wants the yellowish tinge; it is also thicker towards the head, and not so smooth: I think there can be no doubt whatever that Lyonet is entirely mistaken in supposing that it feeds on bramble; I am convinced that it is exclusively a broom feeder: the perfect insect is out from the middle of May to the middle of July: I took it, this last season, without intermission between May 20 and July 7: the larva of C. spartiata is full fed in June and July; it has sometimes a regular yellow stripe on each side. M. Guenée remarks upon the difficulty of rearing the larva of E. cervinaria through the winter: any one who takes the trouble may find the larva abundantly in June by searching among the leaves of Malva sylvestris, and sometimes on the common garden hollyhock: it is then not at all difficult to rear, but must have plenty of air, as it perspires very freely. —*H. Harpur Crewe; Stowmarket, March* 9, 1858.—*Id.*

Successful removal of the Eggs of the Ichneumon from a Larva of Deilephila Galii.—One day, towards the end of October last, when staying at Deal, we were looking for the larva of Deilephila Galii, after the ground had been carefully hunted both by Mr. Stevens and myself, so that we scarcely hoped to meet with any, and were about to relinquish our search in despair, when we came upon a fine larva nearly full fed. This was immediately boxed and carried home in triumph. On opening the box, however, our satisfaction was considerably diminished on perceiving some twenty or thirty whitish spots, which turned out to be Ichneumon eggs. Having heard that the attempt to remove the eggs was sometimes successful, we determined to make the experiment. Our first trial was with a fine needle, but this proved a complete failure, as the needle would not penetrate the hard shell of the egg: we then tried to crush the eggs with a small pair of fine-pointed forceps; this, though a satisfactory mode of destroying the eggs, caused great annoyance to the larva, which jerked itself into a circle when they were applied, so that we feared it would impale itself on the sharp points. The servant then brought a large darning needle, and this proved a most efficient instrument, piercing the eggs, and, in some cases, lifting them off entire, without apparent inconvenience to the caterpillar. In a few days it laid up to change, and soon appeared a fine healthy pupa. In the middle of December it was placed in a small fern-glass by the fire, the pupa covered with moss, which was kept constantly damped, and about a month afterwards came out a fine female, without the slightest blemish.—*J. T. Syme; 11, Gower Street, Bedford Square, February* 18, 1858.—*Id.*

Capture of two Coleopterous Insects new to the British List. — I have much pleasure in recording the capture of two small, but very interesting, genera, Sphærius and Ptinella, both, as far as I can discover, new to the British Fauna: they were taken by myself, some time ago, in Oxfordshire, but, in consequence of the removal of our family from that part of the country, had become till lately almost forgotten. The Sphærius acaroides, *Waltl.*, was found in June, 1854, on a wall in our garden: this is a well-named insect; it exactly resembles in size, shape and colour, the black shining Acarus often found in decaying vegetable matter, and requires a close scrutiny to assure oneself that it is a Coleopterous insect at all. The Ptinella belongs to that section of the genus which has no visible eyes or wings: it appears to be distinct from any species hitherto described; the nearest approach to it is the Ptilium apterum of Guérin, figured in Gillmeister's Monograph of the Trichopterygidæ, but it differs from that species in many important characters, which I will shortly notice: it was taken at Weston-on-the-Green, in Oxfordshire, in July, 1853: the velocity of its motions is wonderful, far exceeding the well-known activity of the true species of Trichopteryx, and would seem impossible to an animal not endued with the power of sight. While I was observing it, it coursed several times along the back of a large spotted slug, Limax maximus, whose slimy skin did not in the least impede its motions.

PTINELLA BRITANNICA.

Elongata, haud depressa, aptera, rufo-testacea, fortius punctata; oculis nullis; capite lato, obtuso, rufo-piceo; pronoto transversali, postice contracto, rufo-piceo, angulis anterioribus productis, posterioribus rectis; elytris capite atque pronoto longioribus, magis subtiliter punctatis, testaceis, ad humeros angustis, medio latioribus, margine postico valde sinuato; abdomine elongato, lateribus marginatis, segmentis quinque apertis, penultima magno, obtuso; antennis et pedibus pallidis, elongatis, gracillimis, singulis antennarum articulis corona setarum nigrarum ornatis.

Elongate, rufo-testaceous, deeply punctured, clothed with a pale pubescence. Head wide, rounded in front, rufo-piceous behind, paler towards the mouth. Prothorax rufo-piceous, transverse, about as long as the head, much contracted near the base, with the anterior angles produced, embracing the base of the head, and the posterior angles nearly at right angles. Elytra testaceous, more finely punctured and rather longer than the head and prothorax united, narrowest at the shoulders, and widest about the middle, with the posterior margin very deeply sinuated. Abdomen long, with its sides deeply margined, five segments uncovered, the penultimate large and very obtuse, the apical segment very small. Legs and antennæ pale, long and slender; on the upper part of each articulation of the antennæ is a conspicuous whorl of strong black setæ. Length ⅜ lin.

This species differs from P. apterum, *Guér.*, in the much larger size, in the shape of the prothorax, which is much wider in front; in the contracted extremities and deeply sinuated hinder margin of the elytra, and in the obtuse form and margined sides of the abdomen.—*A. Matthews; Gumley, Market Harborough, March* 16, 1858.

Entomological Club.

(Continued from page 5839).

Last year we published a statement of the objects of the Entomological Club, an announcement of the times during which the collection might be consulted, a list of the Members, and a Catalogue of the desiderata as far as the new arrangement had been completed. Of the then desiderata the following have been acquired:—

Petasia nubeculosa, by purchase.
Lithosia complana, presented by Mr. Bond.
„ pygmæola, by Mr. Birchall.
Lasiocampa Callunæ, by Mr. Bond and Mr. Backhouse.
Gastropacha Ilicifolia, by the late Mr. Weaver.
Psyche Febretta, ditto.
„ opacella, ditto.
Cymatophora fluctuosa, by Mr. Doubleday.
Acronycta strigosa, by Mr. Doubleday and Mr. Bond.
Synia musculosa, by Mr. Bond.
Miana expolita by Mr. Birchall.
Noctua glareosa, by Mr. Hague and Mr. Killingback.
Dasypolia Templi, by purchase.
Epunda nigra, by Mr. Hague.
Aplecta occulta, ditto.
Hadena suasa, ditto.
Cucullia Lychnitis, by Mr. Doubleday.
„ Asteris, by purchase.
Stilbia anomala, ditto.

For all presents votes of thanks have been passed to the donors at the monthly meetings of the Club. The collection has been visited every Thursday evening by entomologists desirous of naming their captures. The new arrangement has been proceeded with as far as the end of the Geometræ, and a list has been prepared exhibiting the exact state of that portion of the collection. The numerous offers for barter have been respectfully declined: entomologists, seeing that Chrysophanus Hippothoë (dispar of English collections) was not named as a desideratum, have applied for it with very much freedom, and have offered Lithosia complana, Noctua neglecta, and several

Xanthiæ in exchange; Xanthia cerago has also been offered for Polyommatus Acis, "if fine." The following list of Geometræ has been drawn up on a somewhat different plan from the previous one: those species which are absolutely unrepresented are marked with an asterisk; the rest are not intelligibly represented, that is, the specimens, having mostly been taken by myself many years ago, are faded or ill set, or injured in some way or other; in some instances the species is represented by one or two specimens presented by friends. In all instances where the name occurs the space allotted for the species is not filled, and, as only four specimens are desired, unless in the instance of strongly marked varieties, it will be manifest that the object of thus soliciting assistance is not the acquisition of long series.

List of Geometræ desiderata to the Entomological Club.

Eurymene dolobraria
Pericallia syringaria
Selenia lunaria
„ illustraria
Crocallis elinguaria
* Ennomos alniaria
„ tiliaria
„ fuscantaria
„ erosaria
* „ angularia
Nyssia hispidaria
Cleora viduaria
„ glabraria
Boarmia abietaria
„ cinctaria
Dasydia obfuscata
Geometra papilionaria
Nemoria viridata
Iodes vernaria
„ lactearia
Phorodesma bajularia
Hemithea thymiaria
Ephyra poraria
„ trilinearia
„ omicronaria
„ orbicularia
Hyria auroraria
Asthena Blomerata
* Acidalia rubricata
„ scutulata
„ bisetata
„ reversata
* Acidalia contiguaria
„ rusticata
„ osseata
* „ holosericeata
„ incanaria
* „ obsoletaria
* „ straminata
„ subsericeata
„ immutata
„ commutata
* „ strigilata
„ emutaria
* „ inornata
„ degeneraria
„ emarginata
Cabera rotundaria
„ exanthemaria
Corycia taminata
Aleucis pictaria
Macaria alternata
„ notata
„ liturata
Strenia clathrata
Panagra petraria
Numeria pulveraria
Scodiona belgiaria
Selidosema plumaria
Fidonia carbonaria
„ piniaria
„ pinetaria
„ conspicuata
Minoa euphorbiata

Scoria dealbata
Aspilates, *all*
Abraxas ulmata
Lomospilus marginata
Pachycnemia hippocastanaria
Oporabia filigrammaria
„ autumnaria
Larentia multistrigaria
„ rufocinctata
„ salicata
„ olivata
Emmelesia, and
Eupithecia: any good specimens much desired
Collyx sparsata
Lobophora sexalata
„ hexapterata
*** „ viretata**
*** Lobophora polycommata**
Thera juniperata
„ variata
„ firmata
Melanippe tristata
Anticlea rubidata
„ badiata
„ derivata
„ berberata
Phibalapteryx, *all the species*
Scotosia undulata
Cidaria sagittata
„ populata
„ fulvata
„ pyraliata
*** Lithostegia nivearia**
Chesias obliquaria

Those twelve species to which an asterisk is prefixed are altogether absent from the collection; the rest are required to supply the place of wasted, discoloured or injured specimens, or to make up the number of four specimens, the shortest series which I think can really illustrate a species.

The number of specimens of all classes of insects received since the last report is 363; the number of duplicates given away on Thursday evenings is 417.

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

March 1, 1858.—Dr. GRAY, President, in the Chair.

Donations.

The following donations were announced, and thanks ordered to be given to the donors:—'The Journal of the Royal Agricultural Society of England,' Vol. xviii. Part 2; presented by the Society. 'Journal of the Proceedings of the Linnean Society,' Vol. ii. No. 7; by the Society. 'The Natural History Review,' Vol. v. No. 1; by the Dublin University Zoological Association. 'List of the Specimens of Lepidopterous Insects in the Collection of the British Museum,' Part xiii. Noctuidæ; by the Author, Francis Walker, Esq., F.L.S. 'The Zoologist' for March; by the Editor. 'The Journal of the Society of Arts' for February; by the Editor. 'The Literary Gazette' for February; by the Editor. 'The Athenæum' for January; by the Editor. 'The Entomologist's Weekly Intelligencer,' Nos. 67 to 74; by H. T. Stainton, Esq.

Exhibitions.

Mr. Smith exhibited a box of insects sent him by Mr. Foxcroft, by whom they were captured in the Free Town Garden and suburbs of Sierra Leone, in December last. The Lepidoptera included Papilio Hippocoon and P. Pylades, a fine Charops, apparently the female of C. Brutus, and both sexes of Euchromia instructa. Amongst the Coleoptera were Tetralobus flabellicornis, Sternotomis mirabilis and S. regalis, Prosopocera bipunctata and Dirphya, n. s.

Mr. Smith also exhibited a Coleopterous insect allied to the genus Myrmedonia, which he has found amongst a number of specimens of the driver ant (*Anomma Burmeisteri*), sent from Sierra Leone with the before-mentioned collection.

Mr. Stevens exhibited some beautiful Lepidoptera and Coleoptera, taken by Mr. Wallace in Ke and Aru Islands, near New Guinea, of which the most remarkable were the sexes of a variety of Ornithoptera Priamus, Papilio Enchenor, P. Ormenus, P. Ambrax, Hestia D'Urvillii, some fine species of Drusilla and beautiful Erycinidæ, mostly hitherto unknown, Cocytia D'Urvillii, and some singular Geometræ, &c. The Coleoptera included three handsome species of Eupholus, a gigantic new Mecocerus, several brilliant Buprestidæ, some fine and new Lomoptera, numerous species of the Papuan genus Tmesisternus, and a noble Batocera, very distinct from all the known species of the genus.

Mr. Smith exhibited some Hymenoptera captured by Mr. Wallace in the Aru Islands; amongst the more remarkable were a species of Zuthus, entirely of a fine brassy green colour, a new and beautiful species of Tremex, several very beautiful Pompili, and numerous Formicidæ; amongst the latter the finest species of Myrmica perhaps hitherto discovered; three species of Odontomachus, and some entirely new forms of the genus Polyrhachis.

Mr. Westwood observed that it was extremely interesting to see the fine Papilios, &c., which had been found seventy years ago by the Dutch in the Islands of the Indian Archipelago, and since almost forgotten, were now being re-discovered and sent to this country in such admirable preservation: the best thanks of entomologists were due to Mr. Wallace and those who, like him, hazarded their lives in unhealthy tropical climates to collect objects of Natural History, and he trusted they would receive the pecuniary reward they so well merited.

Mr. Westwood exhibited a Tortrix of the genus Carpocapsa, allied to C. splendana of Europe, which had been bred by Mrs. Wood, of St. Leonards, from one of the "jumping seeds" sent from Mexico by Mr. Lettsom, and exhibited at the Meeting of the Society in October last: he observed that, according to a long statement on the subject which had appeared in the 'Journal des Debats,' some of these seeds had lately been received at the Jardin des Plantes in Paris, where the larva had been pronounced to be Coleopterous; but the specimen exhibited proved the correctness of the opinion entertained by entomologists in this country, that they belonged to a Lepidopterous insect. The queſtion as to the mode in which the inclosed larvæ are able to execute the jerking movements exhibited by the seeds remained still an interesting question, for, supposing they were caused by the caterpillar adopting a process similar to that employed by the cheese-hopper, it must be regarded as a solitary instance of such action amongst lepidopterous larvæ.

Mr. Westwood also exhibited the larva of Drilus flavescens, which had been sought for in vain in snail-shells during the excursions of the Society at Reigate, where the males were not uncommon. He had received the larva from a correspondent who had found it in a snail-shell, and it agreed with the figures which had been published in France, where its transformations had attracted considerable attention some years ago, and where the female had been described as a distinct genus, under the name of Cochlevetonus.

Dr. Gray observed that this larva was known to Petiver one hundred years ago.

Mr. S. S. Saunders exhibited two specimens of Leptoderus Hohewartii (Stagobius troglodytes, *Schiodte*, Trans. Ent. Soc., N. S., v. 1, pl. 9, figs. 1, 1 a), one of the blind beetles from the Proteus Cave at Adelsberg, in South Austria. The species, which pertains to the Silphadæ (although the extraordinary elongation of the antennæ and legs give it an appearance quite dissimilar to that of any other genus in the family), was found by Mr. Saunders on a large Stalactite in the deepest part of the cave.

Mr. Smith exhibited some Hymenoptera and their nests, sent from Port Natal by M. Gueinzius, and read the following note communicated by him:—

On the Habits of the Hymenoptera of Natal.

"A species of Stilbum lays its eggs on the collected caterpillars stored up by Eumenes tinctor, which constructs a nest of mud and attaches it to reeds, &c., not in single cells, but a large mass, in which cells are excavated, similar to the nest of Chalicodoma micraria. How does the fly, with such an apparently weak instrument, penetrate such a structure? First, it uses it as a gimlet, and when its point has a little penetrated, then as a saw or rasp: it likewise feels with its ovipositor, and, finding an unfinished or an empty cell, it withdraws it immediately, without laying an egg. A great number of insects breed annually in my house, for which purpose I have always a door or window open to give them free ingress and egress. I once observed a wasp (Synagris calida), flying about my door; I attempted to catch it, when it flew off, but I observed that it returned again and again; at length I noticed some fresh clay stuck on the door, indicating an intention of building: I was anxious to observe its movements and to reconcile it to my standing the door quite back, inwards; this I effected by partly closing it and then watching the return of the insect with its clay; when it was settled, and was eagerly engaged, I moved the door slowly and carefully, and thus by degrees, in the course of two days, I had the satisfaction to see the Synagris during its building operations: it soon became accustomed to the closest observation, and took no notice of me. One day the Synagris, having finished a cell, and not having time to commence a new one, had to perch on the exposed nest during the night; the light of my candle, however, attracted it, and it flew into the room, and took shelter behind a window-curtain until the morning. This insect collects the larvæ of Catocala and other Noctuidæ which secrete themselves in the fissures of tree-bark, between seed-vessels or contracted leaves. I once observed this Synagris sitting on the leaves of a fine Zinnia elegans; it wandered about as a pointer dog would do, inserting its long maxillæ here and there, and getting more and more excited every moment; at length it began to buzz loudly, and struggling it drew forth at last a hidden caterpillar from the middle of one of the flowers of the Zinnia. No tiger could have been more furious over its prey: with what fury it ran its sting into the abdomen of its helpless victim again and again, and with what a buzz of savage glee it dragged it about from leaf to leaf! at length, striding over it, the caterpillar lay motionless, but the suckers of its feet stuck fast, the wasp then had to stop to loosen them; this it did very cleverly by curving its abdomen like a hook under the belly of the caterpillar, using its point like a lever; the stoppages occurred so frequently that the wasp got tired of them, so, turning the caterpillar on its back, all further obstruction was avoided.

"Large spiders and caterpillars become immediately motionless on being stung, and I cannot help thinking that the poisonous acid of Hymenoptera has an antiseptic and preserving property; for caterpillars and locusts retain their colours weeks after being stung, and this, too, in a moist situation under a burning sun.

"*Anthidium cordatum.* This insect forms its cells of vegetable down, glued together with a balsam or resin, which it procures from a flower which exudes a brown balsam; with this it glues the hair together. I have frequently seen the Anthidium in the middle of the flowers, and have no doubt this is the plant which supplies the materials for its nest. I think the plant belongs to the Euphorbiaceæ; it is described by Thunberg in 'Flora Capensis.'

"*Pelopæus chalybeus.* A number of this insect annually make their nests under my verandah; these they construct in the hollow tubes of the bamboo. Having stored up a number of spiders, they resort to the forest, where I have seen them scrape the white birds' dung off the leaves of plants; this they moisten with saliva into a pulp, shape it into a lump, and carry it off. With this material they construct the divisions between the cells.

"*Anthophora* ———? This bee infests the walls of my house inside and out; there is not a single hollow or hole that is not tenanted by one of these industrious, tame and stingless little bees. The hotter the weather becomes the harder they work. They appear twice in the season, November and February. When prevented from going abroad they are not idle, but busy themselves in enlarging and cleaning out their nests; this I have frequently heard them doing in the middle of the night. This bee has a parasite; it is a Crocisa; it inserts its antennæ into the cells to ascertain if there is a store of pollen collected; if it finds the owner at home it tries to squeeze past it; if the passage is too narrow it lays hold of the poor bee, and pulls him out of his own door; the bee, without taking any notice of the intruder, flies away after its own business. This Crocisa has the same habit as many other species of Apidæ, namely, that when at rest it does not sit down, but lays hold with its mandibles of the outermost points of a twig or shrub, keeping its body out in a horizontal position. A number of species, probably all males, may be found every evening, occupying similar situations, attached to twigs, blades of grass, &c. It is a strange sight to see a grass or shrub bearing a number of gray, brown or black hairy bees in the place of seeds or flowers.

"The large (Sphex) Pompilus preys upon a very large hairy spider, which lives in thatched roofs, under verandahs, &c. I have seen this spider fly in the greatest terror from the Sphex, who, however, soon overtook him; the spider kept his enemy at a distance with his long legs for some time, until, exhausted at last, it drew its legs close to its body and remained motionless; the Sphex, like a tiger, was soon upon him, and, thrusting his sting into his thorax, soon rendered him motionless; the Sphex then, walking backwards, dragged his victim out of doors.

"I have noticed two large species of Xylocopa; the first black, with a ferruginous thorax, the male of which closely resembles the female; the second black, with long white hairs on the margin of the abdomen; both excavate dead branches, posts,

&c. The male of the latter species I have reason to believe is a large yellow one. Two years ago I broke a hollow fence post, in which I found a species of Xylocopa; the females were black, the males of a pale fulvous colour. This species was of a smaller size."

Mr. S. Stevens exhibited an entomological store-box lined with Croggon's patent felt, instead of cork, for which, he observed, it appeared to be a tolerably good and very cheap substitute.

Mr. Stevens announced that Mr. Shield proposed to visit Bahia or Paraguay, in search of insects and other objects of Natural History, and was anxious to obtain subscribers to enable him to do so.

Mr. Stainton read the following

Note on a curious little Geometra taken in London by Mr. Hunter.

"Some years ago Mr. Hunter met with a little species of Geometra, apparently of the genus Acidalia, in his garden in Bloomsbury Street. The specimen was unfortunately much injured on one side, and the other side was not so brightly marked as could have been wished; yet enough was left to show that it belonged to none of our existing species.

"In 1855 I examined this specimen, and referred it to the circuitaria of Hübner, remarking at the time, 'No good figure of this exists,' from which it may be assumed that I did not find a complete agreement between the insect and Hübner's figure. The reason of this is now obvious: Hübner's figure of circuitaria is cited by Guenée as an excellent figure; hence it cannot be intended for Mr. Hunter's insect.

"Mr. Hunter's insect thus loses the name by which it has passed current for two years, and what is to become of it? We all remember how we were startled by the announcement of Eriopus Latreillii having been bred at 24, Bloomsbury Street, and when I again looked at the little Acidalia I was haunted by lurking suspicions that, perhaps, what I had before me was only another case of accidental importation.

"Having been lately working at the genus Acidalia, I had the markings of each species fresh in my recollection, and I became very strongly convinced that this specimen must be placed near bisetata and trigeminata, in spite of the great difference in the ground colour.

"Referring again to Guenée's volume, I found, almost immediately following trigeminata, a species which not only answers our purpose of giving a name to Mr. Hunter's late circuitaria, but also affords us an explanation of the peculiar habitat of London for a new British Geometra.

"The insect in question is Acidalia herbariata and Fischer's figure of pusillaria is referred to as the best representation of the insect. The first glance at Fischer's figure was anything but reassuring: instead of the powdery-looking insect I had before me I saw a bright neat insect, with a well-defined dark central band. Not content with the figure, I referred to the description, which I found far more satisfactory.

"The ground colour of all wings is pale loam-colour, mixed with black scales, which form fasciæ and strigæ, whence the markings appear blackish gray. The space between the base and the middle fascia is dull; the fascia is in many specimens 'very dark'; it seems to have been one of these that Fischer has figured 'broadest at an externally protruding point in which is a black dot, narrowest below the middle, being rather broader again on the inner margin.' In the broader parts the pale ground colour appears through as spots. Beyond the fascia and parallel to it is a line, often very dark, behind which the space to the fringes is clouded with dark and bisected into two equal parts by a wavy line of the pale ground colour; the inner portion of these dark parts has below the middle two contiguous short streaks or spots pointing towards the cilia,—a character which no specimen is without.

"On the posterior wings are similar markings, except the central fascia, which is replaced by a dark cloudy stripe which borders the duller basal portion; beyond it near the following line and not far from the costa is a black longish *punkstrich*.

"The elongate form of the central spot of the posterior wings is well shown in Fischer's figure, and is perceptible in Mr. Hunter's specimen, and the two dark teeth so especially mentioned by Fischer are the most conspicuous markings of the anterior wings; hence, in spite of Fischer's very different-looking figure, I feel confident that his insect and Mr. Hunter's are the same.

"Now, how do we account for the insect occurring in London? One-half of the world little knows how the other half lives; and we may suppose that one-half of the geometric larvæ have little conception of what the other half feed upon. At any rate the tastes of this particular insect are very peculiar. It does not feed on a fungus like our other London friend, Boletobia fuliginaria, it does not feed on lichens or moss. On what then? On the dried plants in collections.

"We read in Fabricius, Supp. p. 457, 'Habitat in herbariis folia plantarum exsiccatarum exedens. Mus. Dom. Bosc.'

"I supposed Dom. Bosc. was anything but pleased at this new collecting ground opened out to him; but if it be so that a geometric larva finds nutriment in dried plants it is well we should know of it, as a looper casually observed in a herbarium would be supposed to be there quite by accident.

"On referring again to Fischer we read that 'the perfect insect occurs at the end of July on palings and walls near houses, often indeed in houses, but especially in warehouses where dried plants are kept, since the larva feeds exclusively on dried plants, and as far as we know never touches green ones.'

"It feeds all through winter on these dry plants, and is sometimes very injurious to herbaria, changes in June to a pupa in a slight cocoon in a corner or between dried leaves, and in ten days or a fortnight the perfect insect appears.

"Now the whole mystery seems explained; and the occurrence of a devourer of dried plants in Bloomsbury Street, in the immediate vicinity of the British Museum, where perhaps more specimens might be obtained by a careful search, seems perfectly intelligible."—*E. S.*

Zoological Society.

Tuesday, *February* 23, 1858.—Dr. Gray, F.R.S., V.P., in the chair.

Mr. Gould brought before the notice of the Society a highly interesting series of birds collected by Mr. A. R. Wallace in the Aru Islands. Among them were two species of birds of Paradise—Paradisea apoda and P. regia. Hitherto these magnificent birds have only been sent to this country in a mutilated condition, their skins having been prepared and dried by the Papuans, frequently without their wings, and

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To Naturalists generally.

MR. MOUHOT DE MONTBELIARD, Natural History Traveller, being about to set out for SIAM, with the intention of exploring that country as thoroughly as possible, begs to inform Naturalists and Amateurs that he will be most happy to receive their commissions as early as possible, through his agent, Mr. Samuel Stevens, 24, Bloomsbury Street, London.

Mr. MOUHOT will collect in every department, except Botany, but principally in Zoology and Entomology; and he has every reason to expect, from his experience and ability, that his efforts and labours will be crowned with success in the rich and as yet unexplored country to which he is about to proceed.

Address—H. Mouhot de Montbeliard, au Consulat de France, *Jersey*.

To Entomologists.

MR. J. C. STEVENS is instructed by the Council of the Entomological Society of London to Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, April 16, and following day, at half-past twelve precisely, the Collection of EXOTIC INSECTS of all Orders belonging to the Society, it having been resolved, in pursuance of the Resolution passed at the Anniversary Meeting of the Society, held on the 28th of January, 1856, and approved and confirmed at the Anniversary on the 25th of January last, to dispose of the whole Exotic Collection (except the Typical Specimens). In the Collection will be found a vast number of Species, of great rarity and interest, in Coleoptera, Lepidoptera, and other Orders, mostly in a fine state of preservation. May be viewed on Thursday and mornings of Sale, and Catalogues had of Mr. J. C. Stevens, 38, King Street, Covent Garden; if for the country, by enclosing two stamps.

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To Entomologists.

PREPAID Subscribers to the 'Zoologist' who are desirous of receiving each consecutive number of the 'Manual' as it appears, from Nos. 15 to 24, both inclusive, will please transmit thirty penny postage stamps to E. Newman, 9, Devonshire Street, Bishopsgate. The receipt of No. 15 will be an acknowledgment of the remittance having come to hand.

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To Entomologists.

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A MANUAL OF BRITISH BUTTERFLIES AND MOTHS.
By H. T. Stainton.

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Alterations in Mr. Oxley's Entomology of the Diggings.

The year of departure, 1852, is omitted.

P. 5902, "*At Keelor we came to a river:*" it should be "*creek.*" And again, below in the same page, it should be "*stream*" instead of "*river,*" the streams being mere accumulations of rain water.

P. 5905, for "*pitched my hut*" read "*reached my hut.*"

P. 5906, the mention of "*Casuarina*" is an error; I cannot correctly supply th scientific name.

P. 5907, for "*largest blue-bottle*" read "*smallest.*"

P. 5914, the date of departure should stand thus:—"I left Melbourne on the 4t of April, and reached London on the 24th of July, 1854."—*T. J. R. Oxley.*

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